108 Only a subset of *Pseudomonas aeruginosa* strains is able to colonize CF patients

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Analysis of 200 *Pseudomonas aeruginosa* strains isolated in 25 countries between 1881 and 2005 and including 40 CF isolates and 7 epidemic CF clones from 5 countries, was carried out. The following tests were performed: fAFLP, serotyping, PCR of 9 household genes and 23 antibiotic resistance genes, and antibiotic susceptibility testing for 21 antibiotics. Thirty-five of the 40 CF isolates, including the 7 epidemic clones, clustered into a clonal complex, also containing environmental isolates. Most CF isolates exhibited resistance towards important antibiotics, but without detectable known antibiotic resistance genes. The oprD DNA sequences of 38 CF isolates belonged to one distinct cluster. All CF isolates carried the exoS gene. The CF clonal complex showed considerable overall genetic diversity, but also comprised several homogeneous subgroups. We suggest that the CF clonal complex is overall very successful and therefore more prevalent in the patient population, with a predisposition for the CF lung. This indicates that only a subset of *P. aeruginosa* isolates predisposes to colonization of the CF lung: whereas most *P. aeruginosa* can initially be present in the CF lung, only a subset can initiate permanent colonization. An oprD specific PCR was evaluated for its value with regard to the prediction of the colonization potential of different *P. aeruginosa* strains.

109 Genotyping of *P. aeruginosa*, *A. xylosoxidans* and *S. maltophilia* in a CF centre

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For a total of 140 patients which were cultured for *P. aeruginosa* (PA), *A. xylosoxidans* (AX) and *S. maltophilia* (SM), respectively 70, 26 and 51 patients were found positive. Genotyping was carried out with ERIC2-PCR and AFLP-analysis for PA and with (GTG)5-PCR for AX and SM. Two patients carried 3 SM genotypes, three carried two PA, three two AX and nine two SM genotypes. Six small PA clusters (one of four, three of three and two of two patients) were observed and a single large AX cluster, comprising 7 patients. For SM, three clusters were observed comprising 4, 3 and 3 patients. One patient (G21) carried both a cluster PA and a cluster AX isolate and another patient (G109) carried both a cluster AX and a cluster SM isolate. However, there was no concordance between PA, AX and SM clusters. Overall, cross contamination with strains of PA, AX and SM was very low within our CF-centre patient population.

110 Genetic fingerprinting of *Pseudomonas aeruginosa* (PA) from Italian CF patients (pts): comparison with isolates from environment and other clinical origins in Europe

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Background: The means by which PA is acquired by CF pts are not yet fully elucidated. Aim. Address the type of transmission and/or environmental acquisition of PA and define if epidemic strains are circulating in Italy.
Methods: A collection of 340 strains from 183 pts attending 4 CF centres located in north (A), centre (B) and south Italy (C and D), and 50 environmental (11 from hospital sinks, 39 from swimming pool and mineral water) were genotyped by BOX-PCR (Rademarker J.L.W et al. 1998). A PA panel control strains included: PA01, ATCC 27853, European clone C (EC), Manchester Epidemic Strain (MES) and Liverpool Epidemic Strain (LES). The cluster analysis was performed by "Gel Compar II".
Resuts: A total of 179 genotypes were found. 132 pts were colonized with a single PA genotype, and 46 with two o more genotypes. A total of 82 pts showed genotyped "shared" with other pts while 86 pts had "unique" genotype. 36 groups of pts carrying the same genotype (clusters) were observed: 22 of 2 pts size, 7 of 3 pts, 5 of 4 pts and 2 of 5 pts. No Italian PA CF Strains showed genetically correlation with EC, LES and MES. No genetically correlation was observed between environmental and CF strains. No genotypes correlated were found among strains from Centres A, B and C. 3 genotypes found in 3 pts of centre B are highly correlated with 3 genotypes found in 2 pts of centre D.
Conclusions: The significant number of cluster found recognized the importance of the person-to-person transmission in the centres examined. Environmental acquisition was not documented.
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111* Evaluation of anti-A-band LPS antibodies to *Pseudomonas aeruginosa* in serum from patients with cystic fibrosis

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Chronic infection with *Pseudomonas aeruginosa* is associated with a decline in clinical status of cystic fibrosis (CF) patients. Some studies have shown that a rise in antibodies to *P. aeruginosa* is the risk factor most associated with the development of chronic infection and this increase may detect infection 6–12 months prior to patients being culture positive. Early detection of the organism and aggressive antibiotic treatment is beneficial to CF patients and delays the onset of chronic lung infection.
We have previously described an ELISA system employing A-band LPS as the antigen. This test has now been further optimised to discriminate IgM and IgG classed antibodies. We have used this tool to analyse retrospectively 394 serum samples from 22 patients dating back to 1992. These results have been correlated with the patients' microbiological and clinical data. The mean age of the first *P. aeruginosa* isolated from sputum was 5.8 years. Fourteen of the 22 patients provided serum samples prior to the first recovery of pseudomonas from respiratory specimens. Of these, 4 (18%) demonstrated elevated antibody titres to A-band LPS before culture positivity. Data validating the ELISA will be presented addressing changes of titres over time, categorisation of degree of antibody response, with comparisons to immunoblots and lung function results. We suggest that regular monitoring of serum antibodies to *P. aeruginosa* using A-band LPS as the target antigen has great potential for the diagnosis of infection in CF patients.